

**Microfluidic Devices and Methods with Electrochemically
Actuated Sample Processing**

ABSTRACT OF THE DISCLOSURE

Electrochemical actuation is adopted in an integrated microfluidic chip to transfer fluid for sample preparation, separation and detection. The electrochemical actuation is capable of producing high pressure for on-chip fluidic handling. Technologies and methods are also developed to use only electrical source to control on-chip fluid handling without any external fluidic support. Applications for the devices and methods include micro scale HPLC, ESI-MS, etc.

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